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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/503,608

02/11/2000

Kira Sterling Attwood

RSW00-0010

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10/20/2006

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EXAMINER

TRAN, ELLEN C

ART UNIT

PAPER NUMBER

2134

DATE MAILED: 10/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/503,608	Applicant(s) ATTWOOD ET AL.	
	Examiner Ellen C. Tran	Art Unit 2134	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***DETAILED ACTION***

1. This action is responsive to communication: filed on 2 August 2006 with original application filed 11 February 2000.
2. Claims 1-6 and 9-14 are currently pending in this application. Claims 1, 3, and 5 are independent claims. Claims 7 and 8 have been canceled.

***Response to Arguments***

3. Applicant's arguments filed 2 August 2006 have been fully considered but they are not persuasive.

**Brief summary of prior art of records:**

**Schuba:** discloses a method of network protection for denial of service attacks. Specifically Schuba teaches the patent in relation to the TCP/IP protocol. The Internet Protocol (IP) is the standard network layer protocol of the Internet that provides a connectionless, best effort delivery service (col. 3, lines 18-21). For any TCP connection, there are memory structures that need to allocated by both endpoints ... three memory structures need to allocated at each endpoint ... There is a limit on the number of concurrent TCP connections that can be in a half-open connection state, called the SYN-RECVD state (col. 4, lines 30-65).

**Yavatkar:** discloses a method for diagnosing network intrusion. Specifically Yaavatkar teaches a watchdog agent that determines congestion by analyzing traffic on a network.

In response to applicant's argument beginning on page 6, "Schuba does not anticipate claim 1 because Schuba does not teach the claimed steps of determining, discarding, and

queuing, as claimed ... As proven in the previous response to office action, Schuba instead teaches discarding incoming connection requests until the maximum of half-open connections is reduced". The Office disagrees with argument, and notes the section of Schuba quoted by applicant 'discarding incoming requests until the maximum of half-open connections is reduced' is interpreted to have the same meaning as determining.

In response to applicant's argument beginning on page 7, "Several important differences exist between discarding additional connection requests, as in Schuba, and discarding the datagram, if the number of connectionless datagrams already queued to the port from the host exceeds the prescribed threshold, as recited in claim 1". The Office disagree with argument and notes there is no difference between "half open-connections" and the text stated in claim 1 "connectionless datagrams are received for queuing to a port". Schuba teaches all the limitations that are in claims 1, 3, 5, 7, and 14.

In response to applicant's argument on page 8, "Schuba only teaches methods for dealing with too many half-open connection, which entirely distinct from discarding datagrams queued at a port ... The thrust of Applicants argument is not directed towards splitting fine hairs over the meaning of the term "connectionless" or the meaning of the term "queuing the connectionless datagram. The thrust of Applicants' arguments is that a fundamental and marked difference exist between a queue of connectionless datagrams at a port, as claimed, and a queue of half-open connections, as described in Schuba. The Office disagrees with argument to establish a connection the standard TCP/IP three-way handshake must occur, that is how a connection is established. TCP/IP transfers connectionless datagrams. Discarding datagrams queued at a port,

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when there are too many half open-connections is the same meaning. Note to queue a port is to start communication, which can be termed a half open-connection.

In response to applicant's argument beginning on page 11, "In addition, the proposed combination does not teach all of the features of the other dependent claims ... the cited text plainly does not teach or suggest configuring a maximum number of connectionless datagrams allowed to be queued at the port". The Examiner disagrees and notes that the setting for the port that Yavatkar can alter are obviously the maximum number of connections allowed for the port. The references should be looked at in combination. Schuba teaches that a limit is set by the TCP/IP protocol for the maximum number of connections allowed to be established to a port, Yavatkar teaches that the operational settings of a port can be altered, these operational settings are an obvious variation of the number of connections allowed at a port.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language

5. **Claims 1, 3, 5, and 14**, are rejected under 35 U.S.C. 102(e) as being anticipated by Schuba et al. U.S. Patent No. 6,725,378 (hereinafter '378).

**As to independent claim 1, “A method of preventing a flooding attack on a network server”** is taught in ‘378 col. 1, lines 55-60 “the present invention includes a unique defense for denial of service attacks”;

**“in which a large number of connectionless datagrams are received for queuing to a port on the network server, comprising:”** is shown in ‘378 col. 3, lines 16-33 “The Internet Protocol (IP) is the standard network layer protocol of the Internet that provides a connectionless, best effort packet delivery service. IP defines the basic unit of the data transfer used throughout an IP network, called a datagram. The deliver of datagrams is not guaranteed ... Datagrams are routed towards their destination host” {“connectionless datagrams” same as “connectionless, best effort packet delivery service” / “network server” same as “destination host”};

**“determining, in response to the arrival of a connectionles datagram from a host for a port on the network server”** is disclosed in ‘378 col. 4, lines 52-54 “When a SYN packet arrives at a port on which a TCP server is listening”;

**“if the number of connectionless; datagrams already queued to the port from the host exceeds a prescribed threshold discarding the datagram, if the number of connectionless datagrams already queued to the port from the host exceeds the prescribed threshold”** is taught in ‘378 col. 4, lines 54-58 “There is a limit on the number of concurrent TCP connections that can be in a half-open connection state, called the SYN-RECVD state (i.e., SYN received). When the maximum number of half-open connections per port is reached, TCP discards all new incoming connections requests”;

**“and queuing the connectionless datagram to a queue slot of the port, if the number of connectionless. datagrams already queued to the port from the host does not exceed the prescribed threshold”** is taught in ‘378 col. 4, lines 59-67 “until it has either cleared or completed some of the half-open connections”.

**As to independent claim 3**, this claim is directed to the apparatus of the method of claim 1 and is similarly rejected along the same rationale

**As to independent claim 5**, this claim is directed to a storage media containing program code of the method of claim 1 and is similarly rejected along the same rationale.

**As to dependent claim 14, “wherein the computer is the network server”** is taught in ‘378 col. 4, line 52 through col. 5, line 17.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 2, 4, 6, and 9-13**, are rejected under 35 U.S.C. 103(a) as being unpatentable over ‘378 in further view of Yavatkar et al. U.S. Patent No. 6,735,702 (hereinafter ‘702).

**As to dependent claim 2**, the following is not taught in ‘378 **“wherein the determining if the number of datagrams already queued to the port from the host exceeds a prescribed threshold further comprises: calculating the prescribed threshold by multiplying a**

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**percentage by the number of available queue slots for the port”** however ‘702 teaches “A watchdog agent may assume a network attack exist if network congestion is detected ... In an alternate embodiment a watchdog agent detects network congestion by monitoring interface discard counts and average queue lengths for each port on the node” in col. 15, line 63 through col. 16, line 17.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of ‘378 a method to protect a network from denial of service attacks to include a means to calculate the threshold limit per port. One of ordinary skill in the art would have been motivated to perform such a modification in order to gain information needed to diagnose a network attack (see ‘702 col. 2 lines 44 et seq.) “Therefore there exists a need for a system and method allowing for the distributed state of a network such as information about attack traffic, to be quickly and accurately collected. A system and method are needed for quickly and accurately diagnosing network attacks by determining information such as the source of, or a partial path of, attack traffic”.

**As to dependent claim 4**, this claim incorporate substantially similar subject matter as in cited in claim 2 above and is rejected along the same rationale.

**As to dependent claim 6**, this claim incorporate substantially similar subject matter as in cited in claim 2 above and is rejected along the same rationale.

**As to dependent claim 9**, “**further comprising: configuring a maximum number of connectionless, datagrams allowed to be queued at the port**” is taught in ‘702 col. 12, lines 27-39 “In step 440, proactive environment 100 instantiates service object 300 based on the class of service 102. Proactive environment 100 configures service object 300 per the permissioning

accessed in step 434. For example, one set of permissioning may allow agent 110 to use service object 300 to read the operating characteristics of port 21 and alter settings for the port”.

**As to dependent claim 10, “wherein the configuring step further includes configuring a controlling percentage of available queue slots remaining for the port; and wherein the proscribed threshold is based on the controlling percentage of available queue slots remaining for the port”** is shown in ‘702 col. 12, lines 27-39.

**As to dependent claim 11, “wherein the port comprises a plurality of queue slots the method further comprising: maintaining a number of available queue slots of the plurality of queue slots for the port”** is disclosed in ‘702 col. 12, lines 27-39.

**As to dependent claim 12**, this claim incorporate substantially similar subject matter as in cited in claim 9 above and is rejected along the same rationale.

**As to dependent claim 13**, this claim incorporate substantially similar subject matter as in cited in claim 10 above and is rejected along the same rationale.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee

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pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen C Tran whose telephone number is

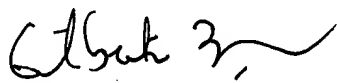
(571) 272-3842. The examiner can normally be reached from 6:00 am to 2:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques H. Louis-Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ECT

Ellen Tran  
Patent Examiner  
Technology Center 2134  
10 October 2006

  
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